Trend Study 14-21-99

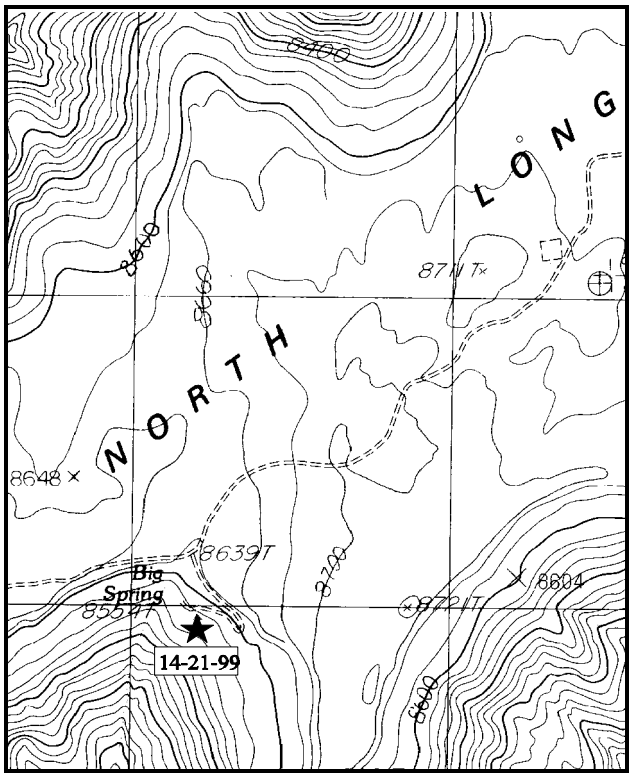
Study site name: North Long Point . Range type: Mixed Mountain Brush .

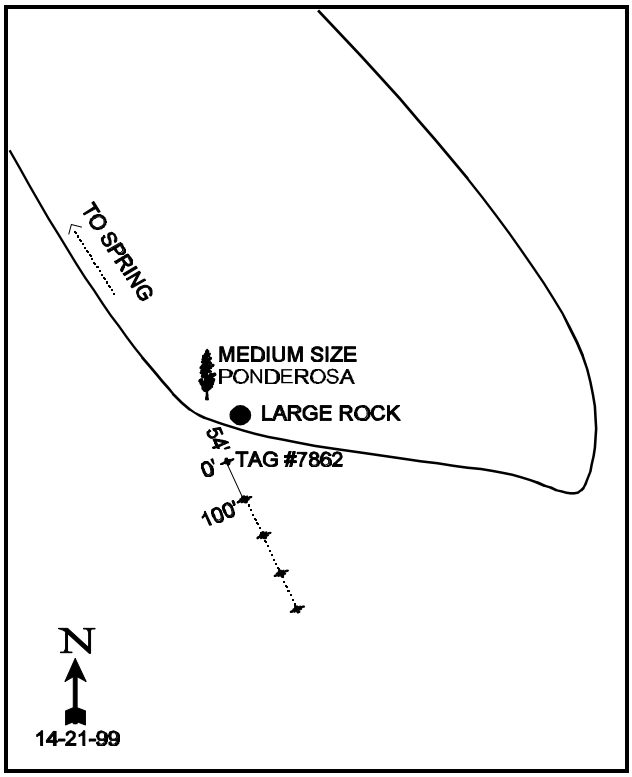
Compass bearing: frequency baseline 135°M.

Footmark (first frame at) 5 feet, footmarks (frequency belts) line 1 (11 & 71ft), line 2 (34ft), line 3 (59ft), line 4 (95ft).

LOCATION DESCRIPTION

From the road junction located approximately 1.5 miles north of Gooseberry Guard Station, continue north for 3.3 miles to a fork. Turn left and travel 4.5 miles on North Long Point towards the Dark Canyon Plateau. At the sign indicating "Big Spring" turn left. Continue 0.35 miles (stay right at 0.1 miles) further to a brushy ponderosa pine located inside the second sharp right bend in the road. Walk 12 paces southeast on an indistinct game trail to the short red-painted and green steel fencepost which marks the start of the baseline. From the PIPO the 0' baseline stake is 125°M and 12 paces from the road.





Map Name: Poison Canyon Diagrammatic Sketch

Township 34S , Range 19E , Section 8 UTM 4188969.617 N, 601200 E

DISCUSSION

Trend Study No. 14-21 (36-9)

The North Long Point trend study is found on the southern rim of North Long Point, an extension of the northwest portion of Elk Ridge. The plateau drops off steeply from the rim into Poison Canyon, which drains into Dark Canyon. The transect runs south along the edge of the plateau rim through Ponderosa pines, oakbrush, mixed mountain brush stands, and small groves of aspen. The site has a generally west aspect with an elevation of 8,400 feet. The area is readily accessible by a road which turns off the main North Long Point road going toward Big Spring. This perennial spring has been developed for cattle use. The transect is below the open flats on top of North Long Point, much of which was treated (2,4-D) and seeded to grass in the early 1960's. No treatments, other than some over story removal of old growth Ponderosa pine, are evident on the actual transect. The study baseline samples Gambel oak, meadow areas, and an open Ponderosa pine forest. Point quarter data from 1999 estimate 30 Ponderosa pine, 31 pinyon, and 27 Rocky mountain juniper trees/acre. Average diameter of Ponderosa pine is 21 inches, while diameter of pinyon and juniper is 4.5 and 6.4 inches respectively. Overhead canopy cover of Ponderosa pine is variable on the site, yet averages 32%. Pinyon pine and Rocky mountain juniper overhead canopy cover averages 2% for each species. Total shrub and tree overhead cover averages over 56% over the whole site.

Cattle grazing is a major resource use in the area and cows were on site in 1992. The large Cottonwood allotment is managed by the Forest Service under a rest-rotation grazing system from June 16 to Sept 15. One of the three pastures is rested each grazing season. Currently, the allotment permits 676 head of cattle (3,718 AUMs) per year and an increase is being considered. Deer pellet groups were not frequently encountered during past readings. The area generally receives fairly moderate summer/fall deer use. Pellet group data from 1999 estimate 13 deer days use/acre (32 ddu/ha), 11 elk days use/acre (27 edu/ha), and 9 cow days use/acre (22 cdu/ha). All of the cow sign was from last season, however the site was read (6/23/99) before livestock were able to get onto the site. Rabbit sign was common. As with the rest of Elk Ridge, the area is open to oil and gas leasing, mining claims, and uranium exploration.

The soil is variable in depth. Effective rooting depth varies from 12 inches to 26 inches. Average effective rooting depth is estimated at over 17 inches over the whole site. Scattered rock slabs, some exposed and others just under the surface layer, are responsible for the variability. Soil texture is a loam with a slightly acid pH (6.1). Phosphorus is low at 8.7 ppm, when values less than 10 ppm have been determined to limit normal plant growth and development. Due to the fairly thick vegetation and litter cover, the soil has continuous ground cover with percent bare ground at less than 5% during all readings.

This study was set up in place of the Big Spring permanent line intercept study and samples an oakbrush opening surrounded by ponderosa pine. Many browse species were encountered on the frequency baseline, including such palatable species as snowberry, bitterbrush, aspen, and serviceberry. Also present is a small and declining population of lightly hedged mountain big sagebrush. Oak is the most abundant species which provided 26% of the browse cover in 1992, increasing to 48% by 1999. Most of the oak has received only light use since 1986. Vigor has been normal over the years and percent decadence low. Snowberry is also abundant. It provided 16% of the shrub cover in 1992, increasing to 35% in 1999. Density has remained similar between 1986 and 1999 at about 2,500 plants/acre. Many plants were moderately browsed in 1986 and 1992, although current use is light. The less common serviceberry and bitterbrush are vigorous, but are sought out and more heavily utilized.

A variety of grasses are present on the site, but none are particularly numerous. Grass abundance is fairly low over much of this site considering the elevation. The most common grasses include, smooth brome, sedge, mutton bluegrass, and Kentucky bluegrass. Forbs are moderately diverse but only a few species are abundant (Western yarrow, silky lupine, and goldenrod). Utilization of herbaceous plants appears to be light.

1986 TREND ASSESSMENT

Data from the old line intercept transects and the new Interagency study indicate a basically stable vegetative trend. The area is dominated by woody plants, so it would seem reasonable to continue management to maintain this valuable forage source in addition to a balance of grasses and forbs. The increase in oak numbers and production is in contrast to the possible decline of big sagebrush. Snowberry also has the potential to increase. Herbaceous forage is limited, but grass is plentiful nearby on top of the plateau. Possible future logging treatments could create more openings along the rim. The soil has a fairly continuous ground cover. There is evidence of some normal surface erosion in areas where the land drops off sharply to the rocky canyons below. Erosion is not a problem on the site and soil trend is stable.

1992 TREND ASSESSMENT

Soil trend is stable with a slight increase in percent bare ground to 4%. Percent litter cover has decreased, but this has happened on most all sites with the continuing prolonged drought. This would change with increased amounts of moisture. Of the preferred browse species, only serviceberry had a downward trend. The downward trend was because of it's small population which is highly preferred and heavily hedged. It should be noted that it only makes up <1% of the browse cover (biomass) and should not be considered a key management species on this site. The overall trend for browse is up. The trend for the herbaceous understory is slightly down for both the grasses and forbs have lower nested frequency values.

TREND ASSESSMENT
soil - stable
browse - up
herbaceous understory - slightly downward

1999 TREND ASSESSMENT

Trend for soil is up slightly with a decline in percent bare ground and an increase in litter cover. Protective ground cover is abundant and erosion is not a problem on the site. Trend for browse is down slightly due to a decline in density, strip frequency, and cover of the key species, Gambel oak and snowberry. Density of the more preferred serviceberry and mountain big sagebrush also declined but they are less heavily hedged. The amount of overhead canopy cover (shading) may be starting to negatively effect the understory shrubs. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses declined slightly while frequency of perennial forbs increased slightly. Grasses provide 64% of the herbaceous cover, however the overall herbaceous trend is considered stable since the dominant grass, smooth brome which is shade tolerant, increased significantly in nested frequency. Western yarrow and silky lupine are the two most common forbs to increase significantly in nested frequency. The only other common forb, goldenrod, remained at a similar frequency compared to 1992.

TREND ASSESSMENT
soil - up slightly
browse - down slightly
herbaceous understory - stable

HERBACEOUS TRENDS --
Herd unit 14 , Study no: 21

Type	Species	Nested Frequency '86	'92	'99	Quadrat Frequency '86	'92	'99	Average Cover % '92	'99
G	Agropyron cristatum	2	-	-	1	-	-	-	-
G	Bromus anomalus	9	14	3	3	6	1	.36	.03
G	Bromus inermis	a78	a68	b117	25	23	36	2.77	4.64
G	Bromus tectorum (a)	-	-	4	-	-	1	-	.03
G	Carex spp.	b73	b58	a30	33	29	12	1.06	.91
G	Dactylis glomerata	-	-	2	-	-	1	-	.15
G	Koeleria cristata	b19	b27	a-	10	13	-	.55	-
G	Poa fendleriana	b89	ab59	a45	34	25	20	1.07	.59
G	Poa pratensis	a6	a42	b43	2	16	15	.90	.69
G	Sitanion hystrix	b52	a23	a3	24	10	1	.36	.03
G	Stipa comata	2	6	1	1	3	1	.04	.00
G	Stipa lettermani	b10	b10	a-	5	5	-	.07	-
Total for Annual Grasses		0	0	4	0	0	1	0	0.03
Total for Perennial Grasses		340	307	244	138	130	87	7.21	7.05
Total for Grasses		340	307	248	138	130	88	7.21	7.08
F	Achillea millefolium	a19	ab29	b48	9	13	19	.53	1.00
F	Artemisia ludoviciana	b28	a7	a2	11	2	1	.06	.00
F	Aster chilensis	a-	b7	c19	-	3	9	.04	.24
F	Calochortus nuttallii	-	-	3	-	-	1	-	.00
F	Cirsium spp.	-	1	-	-	1	-	.03	-
F	Comandra pallida	8	2	5	3	1	2	.00	.01
F	Collinsia parviflora (a)	-	a-	b13	-	-	5	-	.05
F	Crepis acuminata	5	-	-	2	-	-	-	-
F	Delphinium nuttallianum	-	-	2	-	-	1	-	.00
F	Erigeron flagellaris	c18	b4	a-	10	3	-	.07	-
F	Eriogonum racemosum	b15	a6	a3	8	2	1	.03	.00
F	Gilia inconspicua (a)	-	b11	a-	-	7	-	.06	-
F	Lappula occidentalis (a)	-	-	1	-	-	1	-	.00
F	Lupinus sericeus	b83	a10	a29	38	5	14	.08	1.16
F	Penstemon comarrhenus	2	3	-	1	2	-	.01	-
F	Phacelia hastata	4	3	-	2	2	-	.03	-
F	Phlox longifolia	a-	b13	b12	-	6	5	.05	.02
F	Polygonum douglasii (a)	-	10	3	-	4	2	.02	.01
F	Senecio canus	4	1	2	4	1	1	.00	.00
F	Solidago sparsiflora	42	44	44	17	20	17	1.72	.93
F	Stellaria jamesiana	a-	a-	b24	-	-	8	-	.40
F	Thalictrum fendleri	a-	b7	b6	-	3	3	.06	.18
F	Unknown forb-perennial	b8	ab1	a-	4	1	-	.00	-

Type	Species	Nested Frequency '86	Nested Frequency '92	Nested Frequency '99	Quadrat Frequency '86	Quadrat Frequency '92	Quadrat Frequency '99	Average Cover % '92	Average Cover % '99
Total for Annual Forbs		0	21	17	0	11	8	0.07	0.06
Total for Perennial Forbs		236	138	199	109	65	82	2.75	3.99
Total for Forbs		236	159	216	109	76	90	2.83	4.05

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --
Herd unit 14 , Study no: 21

Type	Species	Strip Frequency '92	Strip Frequency '99	Average Cover % '92	Average Cover % '99
B	Amelanchier utahensis	10	7	.18	.21
B	Artemisia tridentata vaseyana	33	28	6.07	2.41
B	Juniperus scopulorum	0	1	1.00	.41
B	Mahonia repens	24	18	4.48	.15
B	Pinus edulis	1	2	.63	.63
B	Pinus ponderosa	0	1	23.22	-
B	Populus tremuloides	1	2	-	-
B	Purshia tridentata	5	5	.56	.21
B	Quercus gambelii	64	62	16.25	11.52
B	Symphoricarpos oreophilus	55	43	9.89	8.51
Total for Browse		193	169	62.31	24.07

CANOPY COVER --
Herd unit 14 , Study no: 21

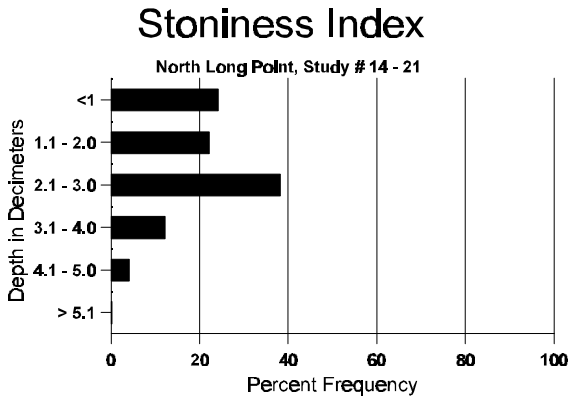
Species	Percent Cover '99
Amelanchier utahensis	.40
Juniperus scopulorum	2
Pinus edulis	2
Pinus ponderosa	32
Populus tremuloides	2
Quercus gambelii	18

BASIC COVER --
Herd unit 14 , Study no: 21

Cover Type	Nested Frequency '92	Nested Frequency '99	Average Cover % '86	Average Cover % '92	Average Cover % '99
Vegetation	256	273	7.25	58.70	31.86
Rock	62	54	9.25	5.44	3.25
Pavement	-	4	0	0	.03
Litter	223	389	80.50	75.71	85.71
Cryptogams	3	6	0	.06	.01
Bare Ground	50	45	3.00	3.60	1.61

SOIL ANALYSIS DATA --
Herd Unit 14, Study # 21, Study Name: North Long Point

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
17.3	50.0 (16.0)	6.1	46.4	33.1	20.6	3.1	8.7	137.6	0.5



PELLET GROUP DATA --
Herd unit 14 , Study no: 21

Type	Quadrat Frequency '92	Quadrat Frequency '99
Rabbit	5	9
Elk	-	2
Deer	4	1
Cattle	1	2

Pellet Transect Days Use/Acre (ha) '99
N/A
11 (27)
13 (32)
9 (22)

BROWSE CHARACTERISTICS --
Herd unit 14 , Study no: 21

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier utahensis																		
Y	86	3	4	1	-	-	-	-	-	-	8	-	-	-	533			8
	92	2	7	-	-	-	-	1	-	-	5	5	-	-	200			10
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	92	-	2	1	-	-	-	-	-	-	-	3	-	-	60	-	-	3
	99	4	-	-	-	-	-	1	-	-	5	-	-	-	100	60	40	5
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	50%	13%	00%	-51%
'92	69%	08%	00%	-46%
'99	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'86	533	Dec:		-
'92	260			-
'99	140			-

Artemisia tridentata vaseyana																		
S	86	1	-	-	-	-	-	-	-	-	-	-	1	-	66			1
	92	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	86	-	1	-	-	-	-	-	-	-	-	-	1	-	66	32	25	1
	92	7	23	5	-	-	-	-	-	-	35	-	-	-	700	-	-	35
	99	26	4	-	-	-	-	-	-	-	30	-	-	-	600	27	34	30
D	86	9	-	-	-	-	-	-	-	-	5	-	4	-	600			9
	92	8	11	1	2	3	-	1	-	-	18	-	6	2	520			26
	99	7	-	-	-	-	-	-	-	-	2	-	-	5	140			7
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	360			18

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	10%	00%	50%	+46%
'92	60%	10%	13%	-40%
'99	11%	00%	14%	

Total Plants/Acre (excluding Dead & Seedlings)			
'86	666	Dec:	90%
'92	1240		42%
'99	740		19%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Juniperus scopulorum																		
Y	86	1	-	-	-	-	-	-	-	-	-	1	-	-	66			1
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	-	-	-	-	-	-	-	-	1	1	-	-	-	20	-	-	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'86	00%	00%	00%
'92	00%	00%	00%
'99	00%	100%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	66	Dec:	-
	'92	0		-
	'99	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Mahonia repens																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	25	-	-	1	-	-	2	-	-	28	-	-	-	560			28
	99	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	149	-	-	-	-	-	15	-	-	164	-	-	-	3280			164
	99	34	-	-	-	-	-	1	-	-	35	-	-	-	700			35
M	86	1	-	-	-	-	-	-	-	-	1	-	-	-	66	6	13	1
	92	27	1	-	4	-	-	-	-	-	32	-	-	-	640	-	-	32
	99	55	-	-	-	-	-	4	-	-	59	-	-	-	1180	4	6	59

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	+98%
'92	.51%	00%	00%	-52%
'99	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	66	Dec:	-
	'92	3920		-
	'99	1880		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Pinus edulis																		
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'92	00%	00%	00%	+50%
'99	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'92	20		-
	'99	40		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Pinus ponderosa																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	-	-	-	-	-	-	-	-	2	2	-	-	-	40	-	-	2
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'92	00%	00%	00%	
'99	00%	100%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'86	0	Dec:	-
'92	0		-
'99	40		-

Populus tremuloides																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	1	1	-	-	-	-	-	-	-	2	-	-	-	40			2
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	2	-	-	-	-	-	2	-	-	-	40			2
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'92	00%	00%	00%	+33%
'99	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'86	0	Dec:	-
'92	40		-
'99	60		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Purshia tridentata																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	2	-	-	-	-	-	-	2	-	-	-	40			2
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	92	-	1	2	1	-	-	-	-	-	4	-	-	-	80	-	-	4
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40	20	28	2
D	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'92	17%	67%	00%	+ 0%
'99	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	0%
	'92	120		0%
	'99	120		17%

Quercus gambelii																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	45	6	3	57	-	-	2	-	-	91	20	-	2	2260			113
	99	11	-	-	1	-	-	-	-	-	12	-	-	-	240			12
Y	86	40	3	1	-	-	-	-	-	-	32	7	4	1	2933			44
	92	267	99	-	8	-	-	18	-	-	281	111	-	-	7840			392
	99	118	-	-	7	-	-	-	-	-	125	-	-	-	2500			125
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	92	53	62	9	17	-	-	-	12	-	133	15	5	-	3060	-	-	153
	99	138	-	-	6	-	-	1	11	12	168	-	-	-	3360	51	37	168
D	86	1	-	-	-	-	-	-	-	-	-	1	-	-	66			1
	92	2	2	3	-	-	-	-	-	-	3	4	-	-	140			7
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	720			36

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	07%	02%	11%	+73%
'92	30%	02%	.90%	-47%
'99	00%	04%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	2999	Dec:	2%
	'92	11040		1%
	'99	5880		0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Symphoricarpos oreophilus																		
S	86	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	92	20	1	-	3	-	-	3	-	-	27	-	-	-	540			27
	99	3	-	-	-	-	-	1	-	-	4	-	-	-	80			4
Y	86	16	2	-	-	-	-	-	-	-	17	-	1	-	1200			18
	92	71	33	1	-	1	-	10	-	-	116	-	-	-	2320			116
	99	42	-	-	-	-	-	3	-	-	45	-	-	-	900			45
M	86	3	14	-	-	-	-	-	-	-	12	1	4	-	1133	33	38	17
	92	16	57	5	2	3	-	-	-	-	83	-	-	-	1660	-	-	83
	99	72	-	-	-	-	-	-	-	-	72	-	-	-	1440	24	36	72
D	86	1	4	1	-	-	-	-	-	-	3	-	2	1	400			6
	92	-	-	-	-	1	-	-	-	-	-	-	1	-	20			1
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	49%	02%	20%	+32%
'92	48%	03%	.50%	-41%
'99	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	2733	Dec:	15%
	'92	4000		1%
	'99	2360		1%